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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CALLAWAY, JADE R

ART UNIT

PAPER NUMBER

2872

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,993	Applicant(s) PAAKKONEN ET AL.	
	Examiner JADE CALLAWAY	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/22/05, 2/9/06, 6/26/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/22/05, 6/26/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Preliminary Amendments to the Specification and Claims, in the submission dated 6/22/05, are acknowledged and accepted.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings were received on 6/22/05. These drawings are acceptable.

Claim Objections

4. Regarding claim 27, the phrase "i.e." renders the claim problematic because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. Regarding claims 27, 30, 39, 41, the phrase "preferably" renders the claim problematic because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

6. Regarding claims 39, 48, the phrase "or the like" or "or other" renders the claim(s) problematic because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 26-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. (5,142,384) in view of Lovison (5,223,357).

Consider claims 26, 33 and 40, Woods et al. disclose (e.g. figures 1-4) a method and product comprising at least one pattern area formed of a micro-optical grid structure produced on a substrate, the grid structure is arranged to produce for a viewer a holographic or a corresponding visual effect (produces a hologram) based on the diffraction of light by directing the light diffracted from the grid structure and corresponding to a visible wavelength substantially to one or more diffraction orders, each single diffraction order corresponding to a certain observing direction (viewing angle) of the visual effect observable at the visible wavelength, and the grid structure being arranged to leave a free range of angles such that the grid structure being examined from directions corresponding to the range of angles does not produce for the viewer a clearly observable effect based on diffraction (hologram is only viewable at the viewing angle), the ratio of the grid period of the grid structure to the visible wavelength being smaller than 5, and the grid structure comprising non-metallic material only (ratio is satisfied when $m=1$, $\lambda=633\text{ nm}$, $\theta_m=0^\circ$, and for values within the range of $5^\circ < \theta_i < 20^\circ$) [col. 2, lines 45-68; col. 3, lines 1-68; col. 8, lines 1-4]. However, Woods et al. do not

disclose that the grid structure is produced as a surface structure with a protective layer or as an entirely or partially buried structure, wherein the grid structure is embossed. Woods et al. and Lovison are related as holographic displays. Lovison teaches (e.g. figures 1-2) a grid structure (14, holographic film) that is produced as a surface structure with a protective layer (12, transparent substrate), wherein the grid structure is embossed (textured) [col. 2, lines 15-23, 48-68, col. 3, lines 1-24]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Woods et al., as taught by Lovison, in order to increase the durability and protection of a holographic film.

Consider claim 27 and 34, the modified Woods et al. reference discloses (e.g. figures 1-4) a grid structure wherein the grid structure is arranged to direct the light diffracted therefrom in only one diffraction order wherein $m=1$ or -1 [col. 2, lines 45-68; col. 3, lines 1-68 of Woods et al.].

Consider claims 28 and 35, the modified Woods et al. reference discloses (e.g. figures 1-4) a grid structure wherein the free range of angles is at least 10° [col. 2, lines 45-68; col. 3, lines 1-68 of Woods et al.].

Consider claims 29 and 45, the modified Woods et al. reference discloses a grid structure produced on a substantially transparent substrate [col. 3, lines 5-15 of Woods et al.].

Consider claims 31 and 42, the modified Woods et al. reference discloses a grid structure produced on paperboard (cardboard) [col. 3, lines 3-15 of Woods et al.].

Consider claim 32, the modified Woods et al. reference discloses a grid structure wherein the substrate comprises at least one dielectric thin film coating on the entire surface area of the substrate or only at the locations corresponding to the grid structure [col. 4, lines 58-68; col. 5, lines 1-8 of Woods et al.].

Consider claim 36, the modified Woods et al. reference discloses a grid structure wherein the diffraction efficiency to the one or more observing directions is affected by the selection of the parameters of the grid structure (the characteristics or parameters of the grid structure impact or affect the efficiency to one or more observing directions).

Consider claim 43, the modified Woods et al. reference discloses (e.g. figures 1-4) a product that is of a packing material (cardboard) [col. 3, lines 3-15 of Woods et al.].

Consider claim 44, Woods et al. teach (e.g. figures 1-4) a product that is a printed product [col. 3, lines 3-41 of Woods et al.].

Consider claim 46, the modified Woods et al. reference discloses (e.g. figures 1-4) a product wherein the basic material of the product at the same time acts as the substrate of the grid structure [col. 3, lines 3-41 of Woods et al.].

Consider claim 47, the modified Woods et al. reference discloses (e.g. figures 1-4) a product wherein the product comprises several pattern areas, at least two of the pattern areas have different observing directions and/or design wavelengths [col. 6, lines 9-13 of Woods et al.].

Consider claims 48-49, the modified Woods et al. reference discloses (e.g. figures 1-4) a product wherein the pattern area forms a trademark, a logo, a product description, or text [col. 3, lines 34-53 of Woods et al.].

Consider claim 50, the modified Woods et al. reference discloses (e.g. figures 1-4) a product wherein the product comprises several adjacent pattern areas that are similar to each other and that are arranged to form a larger area with a substantially uniform visual effect [col. 3, lines 34-53 of Woods et al.].

Consider claims 30, 39 and 41, the modified Woods et al. reference discloses (e.g. figures 1-4) a grid structure with a substantially transparent substrate [col. 3, lines 5-15 of Woods et al.]. However, the modified Woods et al. reference does not disclose that the substrate is made of plastic or lacquer. Note that the Court has held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination; see **Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945)**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a plastic for the substantially transparent substrate of the modified Woods et al. reference since plastics are easily available, durable and cost effective.

Consider claim 37, the modified Woods et al. reference does not disclose that the width of the grid profile is selected to be substantially half of the grid period. Note that the Court has held that mere scaling up or down of a prior art process capable of being scaled up or down would not establish patentability of a claim in an old process so scaled; see **In re Reinhart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976)**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the grid profile of the modified Woods et al. reference to have the width

be substantially half of the grid profile in order to maximize the viewing potential of a hologram.

Consider claim 38, the modified Woods et al. reference does not disclose that one quarter of the value of the wavelength is selected as the value of the height of the grid profile. Note that the Court has held that mere scaling up or down of a prior art process capable of being scaled up or down would not establish patentability of a claim in an old process so scaled; see **In re Reinhart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976)**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the grid profile of the modified Woods et al. reference to have one quarter of the value of the wavelength be the value of the height of the grid profile in order to maximize the viewing potential of a hologram.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Smith et al. disclose (5,724,161) a holographic information display for exterior vehicle application. McAbee (6,404,519) discloses a method of advertising on a motor vehicle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE CALLAWAY whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 7:00 am - 4:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC

/Jade R. Callaway/
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner, Art Unit 2872